



# Consumer mobility in the Scottish isles: The impact of internet adoption upon retail travel patterns



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## ABSTRACT

While there have been numerous studies of on-line shopping behaviour, the impact of internet adoption upon island communities remains largely unexplored. This is despite the identified difficulties that are encountered when attempting to access goods and services in these peripheral economies. Limitations in the transport infrastructure, inconsistent supply and restricted availability have all been acknowledged as issues affecting local retail provision. Island residents have also traditionally been required to travel to the main town or mainland in order to shop for key items. This research study examines the extent to which on-line provision has reconfigured the mobility patterns of residents in the Scottish isles and whether e-commerce has reduced the propensity of individuals to undertake shopping related travel. The findings suggest that e-commerce has had only a modest impact upon consumer travel patterns and that other situational factors moderate the identified benefits that accrue from purchasing on-line.

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## 1. Introduction

A significant body of research has sought to identify how access to the internet and on-line availability has reconfigured consumer shopping patterns. These studies have examined a range of issues relating to consumer behaviour including the factors that influence internet adoption (Hand et al., 2009), the primary advantages that accrue from on-line availability (Verhoef and Langerak, 2001) and the various factors that mediate the use of e-commerce as a shopping channel (Rotem-Mindali and Salomon, 2009; Dholakia et al., 2010).

Research has also examined the extent to which e-shopping has influenced consumer mobility patterns and whether on-line availability has had any impact upon the number of shopping trips made, the activities undertaken and the factors that influence an individual's decision to travel (Collins and Wellman, 2010). For example, Ren and Kwan (2009) considered the geographical distribution of shopping opportunities and whether living in areas of low retail accessibility influenced the propensity to e-shop. While a relationship was noted between retail location and the level of internet usage, the strength and extent of this association was limited. However, despite numerous studies, Hjorthol and Gripsrud (2009) maintain that the impact of e-shopping upon mobility patterns remains unclear.

Hand et al. (2009) argue that the relationship between e-shopping activity and patterns of mobility cannot be understood without reference to the geographical context within which the activities take place. For example, on an island, supply is often limited and products are frequently more expensive than on the mainland. As retail stores are primarily concentrated in the urban area, many individuals are also required to travel considerable distances in order to shop. Specific situational factors can therefore have an important moderating effect that serves to limit, encourage or even negate the benefits of

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e-commerce. The aim of this paper is twofold. First it examines whether internet availability has had an impact upon the number of shopping trips made by island residents. Secondly, it seeks to better understand these mobility patterns and explore the factors that influence an individual's decision to shop on-line.

To achieve the above aims, the paper is divided as follows; first, a theoretical framework conceptualises the impact and influence of e-commerce as a retail channel. This is followed by a brief discussion on the practical issues of living in an island community. After the methodology is outlined, the empirical research details the specific patterns of shopping behaviour before a series of conclusions are drawn.

## 2. E-commerce and consumer behaviour

The potential of e-commerce to reconfigure the geography of consumption has been widely discussed in the academic literature. For example, Cairncross (1997) argued that technical advances would reduce barriers to communication and lead to the *death of distance*. Similarly Hand et al. (2009) argued that on-line shopping represents a form of discontinuous innovation that has led to significant changes in consumer behaviour. Individuals forfeit the sensory and tactile experiences associated with physical shopping while the opportunities for social interaction are greatly reduced. However the benefits derived from e-commerce are also well documented (Sim and Koi, 2002; Verhoef and Langerak, 2001; Wen, 2009). Individuals are better informed, able to shop at a time convenient to themselves, have access to products unavailable in the local market as well as being able to save both time and money (Collins and Wellman, 2010). Using the internet overcomes the pressures associated with bricks and mortar retailing (such as overcrowding, parking and queues) and allows less mobile individuals to access a wider range of goods and services (Larson, 2009; Lee et al., 2009). Many factors determine whether an individual chooses to shop on-line including the type, cost and complexity of the products required, the design of the site, as well as the trust placed in the retailer (Frag et al., 2006b; Hjorthol and Gripsrud, 2009; Rotem-Mindali, 2007; Stranahan and Kosiel, 2007; Wen, 2009). Technical factors such as the availability of broadband may also impact upon the choice of shopping channel with dial up connectivity and a low bandwidth service being seen to inhibit the adoption of e-commerce (Galloway, 2007; Ren and Kwan, 2009).

The potential of technological advances to reconfigure consumer behaviour is not however new. Wigan and Morris (1981) identified how the overwhelming majority of travel trips were multi-purpose in nature and driven by personal time constraints and activity demands. In turn Salomon (1986), Mokhtarian (1990), and Lyons and Urry (2005) examined whether developments in telecommunications would impact upon individual travel patterns. While the benefits that stemmed from innovations such as teleshopping were acknowledged (Salomon and Koppelman, 1988), it was also recognised that consumer mobility patterns remained complex. For example, Hjorthol (2002) identified that on-line availability did not reduce the number of trips made and acts as an additional channel that complemented conventional shopping behaviour (Frag et al., 2006a, 2007; Lee et al., 2009; Ren and Kwan, 2009; Sim and Koi, 2002; Weltevredden, 2006). In contrast, the SAC (2012) noted how the internet could reduce the number of journeys made by consumers in rural areas. Despite the opportunity to provide time savings and reduce the number of shopping trips, the impact of e-commerce upon mobility patterns remains inconclusive (Cairns, 2005; Rotem-Mindali and Salomon, 2007).

Mokhtarian and Salomon (2002) identified a number of ways in which consumer travel patterns may be affected by the availability of on-line shopping. These included:

- Substitution – whereby trips are eliminated completely.
- Modification – where the primary purpose of the trip is altered.
- Generation – refers to trips that would not have previously taken place prior to e-shopping.
- Neutrality – where e-shopping has no effect upon travel behaviour.

Specific situational factors may mediate the impact of each of these effects. For example, while on-line availability has the potential to provide an overall substitution effect, individuals may continue to travel to a particular store for retail reasons (e.g. its service, range, quality, etc.) or for social reasons (e.g. as a compensatory mechanism for the lack of a social network) (Hjorthol, 2009).

Couclelis (2000) sought to understand the relationship between technology and travel by examining how traditional patterns of work and leisure had been reconfigured by the internet. It was maintained that web based services have contributed to a both a blurring and 'fragmentation' of daily routines as individuals reallocate regular activities to different periods of the day or week (see also Kellerman, 2010). This view is re-iterated by Hjorthol and Gripsrud (2009) who noted that technology has removed the time limitations once associated with many domestic activities (such as shopping). As consumers are provided with greater choice and flexibility the complexity of such patterns have been acknowledged (Habib et al., 2009) and research has sought to develop typologies based upon different patterns of consumption (Barnes et al., 2007; Donthu and Garcia, 1999; Ganesh et al., 2010; Hjorthol, 2009; Kau et al., 2003; Rohm and Swaminathan, 2004).

Uncertainty also remains over the extent to which mobility patterns and internet usage are influenced by the existing retail landscape. For example, Ren and Kwan (2009) concluded that the propensity of consumers to use e-commerce was not strongly linked to their proximity to physical stores and that patterns of usage display distinct demographic and socio-economic patterns (see also Krizek et al., 2005). In contrast, a number of other studies have maintained that individuals

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